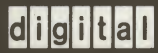


# PCSA

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## DECnet PCSA Client for DOS Release Notes



# **PCSA**

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## **DECnet PCSA Client for DOS Release Notes Version 3.0**

Order Number AA-PAFKB-TK

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**digital equipment corporation  
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2. The second part of the paper is devoted to a detailed analysis of the results obtained in the first part.

3. The third part of the paper is devoted to a discussion of the results obtained in the second part.

4. The fourth part of the paper is devoted to a discussion of the results obtained in the third part. It is shown that the results obtained in the third part are in good agreement with the results obtained in the second part.

5. The fifth part of the paper is devoted to a discussion of the results obtained in the fourth part.

6. The sixth part of the paper is devoted to a discussion of the results obtained in the fifth part. It is shown that the results obtained in the fifth part are in good agreement with the results obtained in the fourth part.



# 1

## Introduction

---

This document contains the release notes for DECnet PCSA for DOS Version 3.0 software. These release notes describe limitations and known problems that you should read about before installing the software.

See the *DECnet PCSA Client for DOS Supplemental Information Guide* for information on new features and information that was not previously included in the documentation. The guide discusses customizing your installation, tuning, and increasing performance. In addition, the guide contains further instructions on installing, configuring, and upgrading your system, as well as additional error messages you could encounter.



## Client Software Installation

---

This section provides information about:

- DOS Installation utility (DOSLOAD)
- Netsetup utility
- Known problems and limitations
- Hardware considerations

### DOS Installation Utility (DOSLOAD)

When using the DOS Installation utility, consider:

- The following fatal error message can be displayed, even though the installation was complete and successful:

`%SYSTEM-F-Nosuchnode, remote node is unknown`

You can receive the invalid message when:

- You install DOS to a cluster where one node has not started DECnet
- The server is installed on only one node of a cluster

The error message occurs because the PCSA Manager remounts the PCSA\$DOC\_SYSTEM\_V30 service with the /CLUSTER modifier after the DOS is copied. The other nodes that are not running LAD\$KERNEL send the error message.

To verify that the installation of DOS to the server is successful:

1. Reconnect to the virtual system disk PCSA\$DOS\_SYSTEM\_V30.
2. Check that the DOS directory and files were created.



- DOSLOAD uses the next drive (after the one connected to the PCSA\$DOS\_SYSTEM\_V30 service) for its own use. If you are connected to this drive, DOSLOAD remembers this connection and tries to reconnect when exiting. However, if the reconnection requires a password, the reconnection attempt fails, and you have to make the reconnection from the DOS prompt.
- If the DOS you try to load is on a diskette that has bad sectors, DOSLOAD fails. Most vendors, however, supply DOS on diskettes without bad sectors.

If DOSLOAD fails with the message, "Too many disk errors, exiting," make a copy of the diskette to a diskette that has been formatted with the `FORMAT /S` command and try again.

- If you install DOS using six diskettes, limit your comments describing the DOS you are installing to 20 characters or less to prevent the DOSLOAD program from failing.

## Netsetup Utility

When using the Netsetup utility, consider:

- Before beginning the Netsetup utility to configure a workstation, you need to create either a bootable diskette or hard disk partition so you can boot the workstation. For information on creating a bootable diskette or hard disk partition, see your DOS documentation.
- If you boot a workstation from a key diskette, Netsetup attempts to access data from the diskette. If there is no diskette in the drive when Netsetup starts, you receive a critical error. Insert the key diskette into the diskette drive and press Return.
- If your `COMSPEC=` environment variable does not exist before the call to `STARTNET.BAT` occurs in the `AUTOEXEC.BAT` file, two syntax errors occur when `STARTNET` runs. These are non-fatal errors; `STARTNET` still executes correctly. Your `COMSPEC=` nevertheless is empty. We recommend that you set the `COMSPEC=` environment variable.
- If you shell to DOS without a diskette in the drive and if one of the following is true, the workstation can hang:
  - The `COMSPEC=` environment variable is set at `A:\COMMAND.COM`
  - Your current drive is the diskette drive
  - Your search path uses the diskette drive



If you want to shell to DOS, make sure you have a diskette in drive A.

- Ensure that at least one remote adapter name is available for Netsetup to use at the workstation where you are running Netsetup. Specify the number of remote adapter names available to the workstation on the SESSION line in the workstation's STARTNET.BAT file.

For example, the following SESSION line specifies two remote adapter names:

```
session /msn:-1 /rem:2 /nbs:-1 /cms:-1 /lan:-1 /nam:-1 /i2a:-1
/M:E
```

- The server node name and address must be defined in the NCP database of the workstation where you are running Netsetup.

Follow these steps to define the server node name and address:

1. Use the NCP DEFINE NODE command to define the server node that receives the PCSA commands from Netsetup in the workstation's NCP database.

For example:

```
$ NCP DEFINE NODE n.nnn NAME server_name MS-NET
```

where:

n.nnn	Is the DECnet node number for the server.
server_name	Is the node name of the server.

2. Reboot the workstation.

If you do not define the server node name and address, Netsetup cannot communicate with the server using the specified user name and password. Any of the following Netsetup error conditions can happen:

- Cannot create and register a remote boot key disk
- Cannot connect to a new LAD after modifying an Ethernet controller
- Erroneously indicates that the workstation was removed

Verify that Netsetup is functioning normally by using the SHOW WORKSTATION command in the PCSA program on the server. This command lists the remote boot workstations.

- When you modify the AUTOEXEC.BAT file using the Netsetup utility, Netsetup always places the network startup procedure lines at the end of the file.

For proper execution, edit the AUTOEXEC.BAT file and move the user's batch commands below the following label:

:end

- Under the following conditions, Netsetup does not ask you if you want to load REDIR into XMS:
  - You are configuring the workstation at which you are running the Netsetup utility
  - and
  - HIMEM.SYS driver is running on the workstation

The workaround for this is to:

1. Select the **XMS** field on the Workstation Profile screen.
  2. Answer **Yes** when asked if the workstation is set up for XMS.
- To unload the network, run the STOPNET.BAT file from the \DECNET directory on your boot device.

## Known Problems and Limitations

Client software installation and configuration has the following known problems and limitations:

- Do not run Netsetup when the IBMCACHE.SYS driver is loaded.
- When the system is running Netsetup
  - If the RESPONSE NEEDED window pops up during the "Enter printer buffer sizes (80-2048):" question, the edit field for LPT3 may not get redrawn when the pop-up window is cleared. This field is still selectable, and the value remains unchanged.
  - If the system displays the CRITICAL ERROR HANDLER window while it is copying files to the network key disk and you select Fail or Ignore, some files can be corrupted. These corrupted files can disable the network key disk. To prevent file corruption, select Retry instead of Fail or Ignore if this message appears.

If any possibility exists that the files have already been corrupted, select Abort.



- When you configure a workstation for remote boot, always enter at least two virtual disk drives when asked, one for the boot drive and one for the system drive.
- The user's AUTOEXEC.BAT and CONFIG.SYS files should always have a trailing carriage return or line feed. Otherwise, Netsetup can truncate the files when it modifies them.
- When you configure a workstation for remote boot with Netsetup, you can see the following error:

Unable to spawn the USE command

If this error occurs, exit from Netsetup and check the amount of free memory available. Netsetup may need more memory than is currently available.

- The DOS Version 4.0 FORMAT /S command looks for the hidden DOS files in the root of the boot device and remembers the drive from which you booted. To format a system disk, you must substitute your boot device for the DOS Version 4.0 subdirectory that contains the hidden files.

For example, assume you boot from a diskette in drive A and connect to the PCSA\$DOS\_SYSTEM\_V30 disk service as drive E. You must do the following to format a system disk:

```
E:\> SUBST A: E:\ISSYSD40
E:\> A:
A:\> FORMAT B: /S
```

If, for example, you remote boot from drive D, substitute drive D for E:\ISSYSD40.

When you have finished formatting, you can delete the substitution:

```
A:\> E
E:\> SUBST A: /D
```

- When you install the client software, you may receive additional messages that are not shown in the installation documentation if the software media is accessed on a different node through DECnet. Despite these messages, the installation is unaffected.
- The first time you log in on a workstation, LOGIN connects to your personal account on the VAX computer and places that directory at the beginning of your path. If you run LOGIN again, however, DOS may find your LOGIN.COM file in your VMS account and try to run that file, causing the workstation to hang.

To prevent the workstation from hanging, do one of the following:

- Specify the full path of the LOGIN.BAT file; for example:

E:\DECNET\LOGIN

- Change directories and run LOGIN from the \DECNET area of system service, where the correct file can be found.
- When you remove or change the Ethernet controller of a remote boot workstation, be sure your current drive is not connected to the virtual disk drive associated with that workstation. Otherwise:
  - If you are removing a remote boot workstation, you will receive an error indicating that USE cannot disconnect from the current drive. Press any key to continue. The removal of the workstation takes place anyway.
  - If you are changing the Ethernet controller, the error message "ERROR:DEVICE IS CURRENTLY IN USE" is displayed.

Follow these steps to clear the error:

- a. Press any key to continue.
- b. Use Netsetup to enter a new hardware address.
- c. Select **WRITE KEY DISK** at the Workstation Profile screen.

When you exit from Netsetup, your current drive is no longer valid.

- If you load LAT into EMS memory, use the value of 700 for the LAT service table size so that LATCP functions correctly.

## Hardware Considerations

Be aware that there are potential problems related to the following hardware:

- Zenith 248—80286 (8 MHz) with Z-449 video boards

Use of the Autosense mode (dip switch number 5) on the Z-449 video board conflicts with DECnet PCSA Client for DOS Version 3.0. Typically, the system will hang when trying to access the server.

To avoid this problem, disable the Autosense mode.



- Zenith EMM.SYS memory driver, Version 3.30.12

This memory driver is currently supplied with Zenith MS-DOS Version 3.3. The DEPCA Ethernet controller must be configured in the 32 Kbyte Secondary mode for this memory driver to work.

This memory driver does not support XMS.

- Zenith 248 - 80286 (8 MHz) proprietary memory board

Some proprietary memory boards on the Zenith 248 system do not support LIM Version 4.0. You should consider using either:

- An alternative third-party memory manager
- A third-party memory board to take advantage of the EMS features of DECnet PCSA Client for DOS Version 3.0

- COMPAQ systems

For system memory to work correctly, most COMPAQ 386 systems require that you configure with a version of CEMM.EXE that has a User Program disk greater than Version 6.02. Be sure to run the Install program on the User Program diskette so CEMM will recognize the correct amount of available memory (the default is 256 Kbytes).

You may need to set additional hardware switches on some COMPAQ models to make memory available for DECnet PCSA Client for DOS Version 3.0. Consult your system documentation or your COMPAQ dealer for more information on setting hardware switches.

Current versions of CEMM.EXE do not support XMS memory.

- DECstation 325C, 316SX, 316 PLUS

If you set up these systems with the SCSI drive option, you must load the SCSIHA.SYS driver. Follow these steps to load the driver:

1. Open the CONFIG.SYS file
2. Locate this line:

DEVICE = LADDRV.SYS

3. Add this line:

DEVICE = SCSIHA.SYS

right before the DEVICE = SCSIHA.SYS line

4. Reboot your system

- DECstation 3xx series systems

The EMS Version 4.0 memory manager, DEMM.SYS, is not supported in DECnet PCSA Client for DOS Version 3.0. Use a third-party alternative. For suggestions, see *Memory Solutions*.

- DECstation 2xx series systems

Native memory boards for the DECstation 2xx series systems currently do not have a supportable device driver that is compatible with the Version 4.0 EMS standard required by DECnet PCSA Client for DOS Version 3.0.

To take advantage of the EMS capabilities, you should consider third-party hardware and/or software. For suggestions, see *Memory Solutions*.

# 3

## Asynchronous Installation

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This chapter provides information about asynchronous installation.

- If you use a modem for a DYN SWITCH connection, the modem signal does not drop during the switch.
- If you specify the /NOHANGUP parameter on the terminal line, the modem signal does not drop after the DDCMP is set to OFF. The line returns to terminal mode.
- If you turn on DECnet manually, entering a Ctrl/C or a Ctrl/Y after the switch message aborts the switch. The line returns to terminal mode.
- For a dynamic connection, the system adds the line and circuit to the VMS system database. The additions occur when you switch the line from terminal mode to DDCMP mode. You do not have to enter this information yourself.
- Do not use DYN SWITCH to switch an asynchronous terminal connection to a VMS system through a switch, or a LAT terminal server to a DDCMP line.



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## PC DECwindows

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This chapter provides information about the following aspects of PC DECwindows Display Facility:

- Limitations and known problems
- Incompatibilities with DOS device drivers

### Limitations and Known Problems

The PC DECwindows Display Facility has the following limitations and known problems:

- If you are using the new DECstation 200 or 300 advanced mouse, use the DWCONFIG utility to select **PS/2** as the pointing device. The DECstation 350 uses the old Olivetti Bus mouse (the OLIBUS selection).
- If you use a 386 memory manager, it must be VCPI (386 Virtual Memory Control Program Interface) compliant.
- Unused extended memory managed by HIMEM.SYS is unavailable to DWDOS386. Use DWDOS286.EXE on these systems if you want to use that memory, or configure unused extended memory as expanded memory with a VCPI-compliant 386 memory manager.
- The drawing of very wide dashed lines in PC DECwindows does not conform to the X protocol. Wide line joins can also produce non-conforming results in some cases.
- The VMS and ULTRIX Session Managers do not run on PC DECwindows because they are not designed to run to a remote display.
- The /L option of ANSI.SYS (PC-DOS 4.0) can cause video problems when you return from a suspended session. Do not use this option if you intend to suspend the session.
- Do not use the DOS PRINT command, other TSR programs, or any programs that run in the background during a suspended session.

- The DECwindows DDIF Viewer performs poorly in the DWDOS286 executable with a color video when you are viewing complex graphics.
- If you lose keyboard input on very slow machines (IBM AT 6 MHz, for example), enter the following command at the DOS prompt:

```
SET DOS16M=FAST
```

- The command line parameter `HELP` displays a page of all the available parameters. This page is too large to fit on one screen. To see the entire page, pipe the output through the `DOS MORE` function. For example:

```
DWDOS286 HELP | more
```

- The DOS environment variable that sets the swapping directory for the DWDOS386 executable (`DOSX`) must not have a trailing slash (`\`) on the specified directory. You can add environment variables, such as `DOSX` and `DOS16M`, to your `AUTOEXEC.BAT` file.
- Do not attempt to start either the DWDOS286 or DWDOS386 executable from a suspended session.
- If loading a MS-DOS mouse driver for the Logitech serial mouse, start it to run at 1200 baud. If it is loaded with its default baud rate, the DWDOS286 and DWDOS386 executables cannot find the mouse.
- The `tmp_directory` is not in the user preferences file, `DWDOSUSR.INI`. It is in the workstation setup file, `DWDOS.INI`.
- If you run DWDOS386 and have not created the `DWDOS.INI` file, your system reports the error and then hangs. Create the `DWDOS.INI` file and reboot your PC.
- The Suspend session feature with DWDOS386 can fail on 33MHz 80386-based PCs. Use DWDOS286 if you intend to use this feature.
- You can exceed PCSA system resource limits if you use a file or disk service for the DWDOS286 or DWDOS386 swap file. If this situation occurs, the display facility fails while trying to read or write to its swap file.

To recover from this condition, try these tactics in the following order:

1. Change the swap device to your hard disk.
2. Add more memory to reduce the amount of swapping.
3. Reduce the number of applications that use the display facility.



4. Tune your network services parameters by doing the following:

- a. Increase the number of buffers to a maximum of 31.

The following NCP command increases the number of buffers to 24:

```
$ NCP DEFINE EXECUTOR MAXIMUM BUFFERS 24
```

- b. Reduce the number of pipe quotas from the default of 6 to as few as 2.

The following command reduces the number to 4:

```
$ NCP DEFINE EXECUTOR RECEIVE PIPE QUOTA 4
$ NCP DEFINE EXECUTOR TRANSMIT PIPE QUOTA 4
```

**NOTE**

Reducing the number of pipe quotas to 2 can impact performance.

- c. Increase the number of line receive buffers from the default of 4.

The following command increases the number to 8:

```
$ NCP DEFINE LINE RECEIVE BUFFERS 8
```

## Incompatibilities With DOS Device Drivers

Do not use the following extended memory device drivers with PC DECwindows:

- IBM XMA2EMS EMS simulator for PS/2
- IBM VDISK versions prior to Version 4.0

However, you can use a ramdrive, disk caching, or vdisk program that:

- Allocates extended memory in the same way as the IBM VDISK Version 4.0 standard or the Microsoft RAMDRIVE standard.
- The PC DECwindows memory manager is able to detect.

## Workarounds for Incompatibilities with DOS Device Drivers

The following workarounds can be used to allow PC DECwindows to run when incompatible DOS drivers are loaded in extended memory:

- For the DWDOS286 executable, you can use the DOS16M environment variable to force the Display Facility to run. Specify which portion of extended memory to use with the DWDOS286 executable, using this command:

```
DOS16M=@start_addr[-end_addr][:size]
```

Where:

start_addr	Is the starting memory address to use.
end_addr	Is the ending memory address to use. This parameter is optional.
size	Is the size of memory to use. This is optional.

For example, to use extended memory between 2 Mbytes and 3 Mbytes, specify:

```
DOS16M=@2m-3m
```

This example allows use of the Display Facility when incompatible extended memory programs are using the memory from 1 Mbyte to 2 Mbytes.

- For the DWDOS386 executable, you can use the DOSX environment variable to force the Display Facility to run, as follows:
  - To run with a non-VCPI 386 Memory Manager, set "DOSX=-CEMM" to disable the memory manager.
  - To run with an incompatible VDISK driver, set "DOSX=-VDISK" to force the Display Facility to run when it is confused by VDISK regarding the correct amount of extended memory available.
  - To limit the amount of extended memory that the Display Facility can use, specify the physical address in memory where the Display Facility should start by setting:

```
DOSX=-EXTLOW number
```

Where:

number	Is the starting memory address.
--------	---------------------------------



For example, if you are using an incompatible disk cache program in the extended memory range 1 Mbyte to 2 Mbytes, enable the Display Facility to use only memory above 2 Mbytes by setting:

DOSX=-EXTLOW 200000h

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DEPARTMENT OF THE HISTORY OF ARTS  
1100 EAST 58TH STREET  
CHICAGO, ILLINOIS 60637

## MS-Windows

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MS-Windows has the following limitations:

- Do not attempt to print graphics to a text printer.
- The line printer driver, LINE.DRV:
  - Does not validate the paper width and length fields. Invalid entries in these fields may corrupt MS-Windows.
  - Produces roundoff errors in the English-to-Metric and Metric-to-English unit conversions.
- The DCONTROL utility:
  - Displays the client nodename as an available node for a file or print service. This may be misleading, but it is not harmful to the system.
  - Flashes the screen when Help text is displayed.
- DECmouse and DECgraph VGA limitations

DECmouse does not support VGA or Microsoft Mouse Driver V6.0 functionality. Applications that require this functionality will not work.

DECgraph does not support VGA functionality. Screen printing while in VGA-specific video modes will give undefined results.



9

1947-1948

The following is a list of the names of the persons who were members of the Board of Directors of the United States National Committee for the United Nations Conference on the Law of the Sea, during the period from January 1, 1947, to December 31, 1948.

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20. Mr. Robert H. Jackson, Secretary, United States National Committee for the United Nations Conference on the Law of the Sea, New York, New York.

# 6

## The MS-Windows VT320 Terminal Emulator

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This chapter discusses:

- Restrictions
- Known problems with full modem control
- International key sequences with the VT320

### Restrictions

Be aware of the following restrictions for the VT320 terminal emulator:

- The VT320 LAT interface program (DECLAT) requires LAT.EXE to be loaded. Users who specify "Network Terminal Services" for communication within the MS-Windows VT320 Terminal Emulator must have previously loaded LAT.EXE.
- For a DECnet-DOS only installation running the VT320, be sure the DECLAT from the PCSA Windows diskette is installed somewhere on the user's path.
- COMPAQ SLT systems require using either the numeric keypad or a full-size enhanced keyboard if used with the VT320 terminal emulator for MS-Windows.

### Known Problems with Full Modem Control

The VT320 terminal emulator does not support full modem control.

The MS-Windows operating environment does not support preemptive scheduling, which means that the precise timings required for full modem control cannot be guaranteed to be accurate.

Listed below are the known problems with full modem control for the VT320:

- If DSR comes on and CD fails to come on within 30 seconds, the terminal should initiate a disconnect.
- If CD is on and then dropped, the terminal should wait either 2 seconds or 60 milliseconds (based on the set-up parameter) for CD to come back on. If CD does not come back on, the terminal should initiate a disconnect.
- A disconnect should turn DTR off for 220 milliseconds if DSR is off, for 5 seconds if DSR is on, and then turn DTR back on. The VT320 terminal emulator only turns DTR off for 183 milliseconds which is too short.

As an alternative, full modem control can be used in SETHOST.

## International Key Sequences with the VT320

Depending on the workstation type and version of MS-Windows configuration (specifically keyboard and country), there are problems generating some specific keys.

On the IBM Enhanced keyboard, the following key sequences do not work:

- The Right Alt key in all non-US versions of MS-Windows.
- On the Spanish keyboard, Ctrl/Alt C-cedilla does not produce a } character.
- On the Canadian keyboard, Ctrl/Alt < does not produce a } character.
- On the Belgian keyboard, Ctrl/Alt u does not produce a ' character.
- On the Danish keyboard, Ctrl/Alt ' does not produce a | character.
- You cannot turn off cap lock in the German, French, and Belgium versions of MS-Windows by pressing the Lock key. It can be turned on by pressing the Lock key, but must be turned off by pressing the Shift key.

On the AT keyboard, the following key sequences do not work:

- On the Canadian keyboard, the ~ and \ keys are mapped to each other.
- On the Swedish keyboard, Ctrl/Alt < does not produce a \ character.
- On the Swedish keyboard, Ctrl/Alt ' does not produce a ~ character.



- On the Swedish keyboard, Ctrl/Alt/Shift ' does not produce a ' character.
- On the Norwegian and Danish keyboards, Ctrl/Alt < does not produce a \ character.
- On the Norwegian and Danish keyboards, Ctrl/Alt ' does not produce a ~ character.

On the XT keyboard, the following key sequences do not work:

- In all foreign versions of MS-Windows, Ctrl/Alt < does not produce a \ character.
- On Swedish, Finnish, Norwegian, and Danish keyboards, Ctrl/Alt/Shift < does not produce a | character.
- On Canadian keyboards, Ctrl/Alt \ does not produce a # character.



# 7

## SED<sup>T</sup>

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This chapter contains the following discussions on SED<sup>T</sup>:

- Limitations and known problems
- SED<sup>T</sup>.PIF file

### Limitations and Known Problems

When using SED<sup>T</sup>, consider:

- SED<sup>T</sup> makes an incorrect assumption about which keyboard is attached to the system on which it is running. If this situation happens, you can do one of the following:
  - Set `KEYBOARD=correct keyboard`.  
Enter the correct keyboard for your workstation.
  - Use the appropriate command line option.
- A mouse cursor is displayed when you use SED<sup>T</sup> if either:
  - The SED<sup>T</sup>.CNF file has `MOUSE=ENABLED`
  - You have no `MOUSE=` command and the mouse driver was loaded before loading SED<sup>T</sup>

However, after several mouse moves, the mouse cursor disappears and fails to return. The disappearance of the mouse cursor does not cause any other problems. This problem only happens with the DEPCA mouse.

If you do not want the mouse cursor on your initial SED<sup>T</sup> screen, set the following in your SED<sup>T</sup>.CNF file.

`MOUSE=DISABLED`



## SEDT.PIF File

Some of the settings in the SEDT.PIF file are incorrect. SEDT.PIF is the file that allows the SEDT.EXE program to run from within MS-Windows.

Before SEDT.EXE runs, use the PIFEDIT.EXE utility to change the incorrect file settings. This utility is shipped with retail MS-Windows. If you are upgrading from PCSA Version 2.2, you can find the utility in the PCAPP directory of the MSWINV21 disk service.

The following table lists where the incorrect settings occur and tells you the correct value to enter:

Incorrect Setting in...	Correct Value
Program name	SEDT.EXE
Program title	SEDT EDITOR
Parameters	? (question mark)
KB Required	205
KB Desired	640
Directly Modifies	SCREEN KEYBOARD
Program Switch	TEXT
Screen Exchange	TEXT
Close Window on Exit	YES

# 8

## DECnet-DOS Components

---

This chapter describes the known problems and limitations of DECnet-DOS Version 3.0 components. Refer to the following manuals for complete details regarding these components:

- *DECnet-DOS User's Guide*
- *DECnet-DOS SETHOST Terminal Emulation Guide*
- *DECnet-DOS Network Management Guide*
- *DECnet-DOS Programmer's Reference Manual*

The following topics are discussed:

- CTERM limitations
- Data Link Layer (DLL)
- Data Test Sender/Data Test Receiver (DTS/DTR)
- NETBIOS and DNP changes and additions
- Network Control Program (NCP)
- Network Device Utility (NDU)
- Virtual Printer Driver (NPDRV)
- Network File Transfer (NFT)
- Network Virtual Terminal (SETHOST)
- Mail Sender (MAIL)
- Scheduler (SCH)

## CTERM Limitations

Command line editing over a CTERM connection does not support command lines that contain Tab characters.

## Data Link Layer (DLL)

Do not define NCP DEF CIRC SERVICE DISABLED on the 3COM EtherLink/MC (3C523). Disabling MOP service can result in dropped disk service connections.

To ensure proper operation of the Ethernet card, use the recommended NCP parameter settings for the data links. If you change a DLL.EXE data link in a PC, manually adjust the settings using Table 8-1.

**Table 8-1 Recommended NCP Parameter Settings**

	NCP LINE RECE BUF	NCP EXEC MAX BUF	NCP EXEC NAK QUOT	NCP CIRC SERVICE	NCP CIRC MULTI
3C501	8	24	6	disabled	disabled
Interlan	8	24	6	disabled	disabled
3C503	4	16	0	enabled	enabled
3C523	4	16	0	enabled	enabled
DEPCA (32KB)	6	16	0	enabled	enabled
DEPCA (64KB)	15	31	0	enabled	enabled

The DLLMICOM driver only applies to the Interlan NI5010 Ethernet boards.

The 3COM EtherLink II 3C503 data link driver does not support the NCP LOOP LINE CONTROLLER.

The NCP line counter, COLLISION DETECT CHECK FAILURE, is incremented when the data link recovers from an internal error condition. You can ignore the counter. This occurs in the following DLLs:

- DLL3C501
- DLL3C503
- DLL3C523



- DLLMICOM

## Data Test Sender/Data Test Receiver (DTS/DTR)

Data Test Sender (DTS) and Data Test Receiver (DTS) are tools that test the network and measure its performance. You can find more information about these tools in the DTS.TXT file.

Listed are the known limitations and problems of the DTR and the DTS.

- If DTR is run from MS-Windows, it does not function while iconic.
- DTS Data and Interrupt Echo tests can fail when run against DECnet-RSX and DECnet-VAX DTRs. The symptom is a sequence number failure in which the sequence number received is higher than the one expected.

DTR fails when received messages occur faster than the system transmits them. This is an application-level logic anomaly. The DTR program uses a fixed number of buffers. The program does not prevent receiving new messages, even when it does not send old messages. Eventually, an incoming receive message overwrites an outgoing message, effectively losing the unsent messages.

- Using Ctrl/C several times while running DTR on your PC could result in the following message displays:

```
run-time error R6000 -- stack overflow
```

After displaying this message, the program returns to the DOS prompt. Use NCP to disconnect the DTR link before rerunning DTR.

## NETBIOS and DNP Changes and Additions

The following changes affect the NETBIOS options:

- NETBIOS and DNP ignore the /M and /NBS options.
- The /CMD option increases the number of SDBs and CCSs designated by the number specified.
- DNP with NETBIOS has two additional options, /LCN and /FC.
- DNP Ethernet Limitations
  - When DNP loads into EMS, the maximum number of links is 12 on the NETBIOS variant (DNNETHAT), and 8 on the standard PC variant. The maximum number varies with changes made to NETBIOS command line options.

- When you load DNP without NETBIOS support into EMS, the maximum number of links available is approximately 30.
- DNP Asynchronous Limitations
  - The DNP/NETBIOS or DNP produces receive data overruns when doing file transfers of 4 Kbytes or greater. This overrun occurs when running at 9600 baud or greater. It is not a fatal error.
  - The DNP/NETBIOS combination cannot load into EMS memory. It can load only into conventional memory. A DNP without NETBIOS can use EMS.

## Network Control Program (NCP)

The following are NCP limitations:

- The NCP command DEFINE LINE RECEIVE BUFFERS does not set receive buffers on 3COM EtherLink 3C501 and Interlan NI5010 boards, since they are single buffered boards.
- In asynchronous mode, the NCP LOOP CIRCUIT NODE *node-name* does not work. Loop operation does not perform and no error message appears.
- If you stop a loop circuit using Ctrl/C, the circuit service remains disabled.

## Network Device Utility (NDU)

The Network Device Utility is limited in the following ways:

- You cannot use the DISKCOPY utility to or from an NDU disk.
- TOPS-10 and TOPS-20 Limitations
  - NDU does not work properly with TOPS-10 and TOPS-20 systems. These are limitations in the TOPS-10 and TOPS-20 File Access Listener (FAL).
  - For virtual disks, FAL supports 512-byte, image mode sequential files, fixed-length records accessed randomly by relative record number.
  - For virtual printers, FAL supports variable-length ASCII sequential files. They must have implied CR/LF (carriage return line feed) on record management systems (such as VMS or RMS). The sequential files must have stream files on stream systems (such as DOS).



## Virtual Printer Driver (NPDRV)

On IBM PCs, using the virtual printer with the background print spooler can cause the system to hang.

## Network File Transfer (NFT)

When printing remote files using wildcards, NFT prints only the first file that satisfies the wildcard specification.

## Network Virtual Terminal (SETHOST)

The following are problems and limitations of SETHOST on supported industry-compatible personal computers:

The SETHOST utility lets you create a new DOS process from within your terminal session. The following limitations apply when you are creating a new DOS process from SETHOST:

- Do not install terminate-and-stay-resident programs (TSRs). When you run a TSR while using the To MS-DOS feature, it can cause memory fragmentation. Fragmentation causes programs to fail if they run after SETHOST exits.

### NOTE

The MODE, KEYB, and PRINT commands are TSRs under certain conditions.

- The system loses DOS environment variables set in a DOS process when you exit the process.
- The SETHOST keyboard mappings have changed. Refer to the *DECnet-DOS SETHOST Terminal Emulation Guide* for more information.
- The laptop keymap for the SETHOST terminal emulator is designed for use with the native COMPAQ SLT keyboard.
- Running SETHOST with an extended keyboard buffer using the DECMODE utility from the PCSA Client kit does not work. Reset the keyboard buffer to default using DECMODE m,16, or use the public domain utilities BIGBUFF or KBFIX2, which extend the keyboard buffer in a compatible way.
- A CGA video card and use of the F3 key to enter and exit Set-Up produce a brief flash of video snow on the screen.



## CTERM Connections for SETHOST

The following are limitations when running SETHOST with a CTERM connection:

- When you are using the VMS command recall feature immediately after switching from one CTERM session to another, the first line recalled may be from the first CTERM session.
- When you enter command lines that are longer than one line, the delete key works only on the second line. You cannot delete the input on the first line.
- When using a CTERM SETHOST connection, the terminal defaults to the system default terminal type. Use SET TERMINAL/INQUIRE to get the correct terminal type.

## Asynchronous DECnet Connections for SETHOST

When you are using an asynchronous DECnet configuration, if SETHOST finds the file LAT.EXE in the path (left over from a previous Ethernet configuration), the following happens:

- It tries to use LAT first
- It tries to use CTERM second

Because the LAT uses Ethernet connections, it fails. You can delete or move LAT.EXE to a path used only by an Ethernet configuration.

## Mail Sender

The following lists limitations of Mail on supported personal computers:

- The network must be loaded for the Mail program to initialize (start up) and create MAIL.DAT properly.
- If the line state is OFF or the network is not loaded when you are using mail, you will see a message display similar to the following:

```
Sending mail...
Cannot send any mail directly to NODE1 because : Host is down
Cannot forward any mail to NODE1 through NODE1 because : JuSubj:

Error connecting to NODE1 : Host is down
Mail in MAIL.TXT was not received at the addresses in MAIL.ADR.
```

## **Scheduler**

Under certain conditions an asynchronous character loss occurs. This loss occurs with non-DECnet asynchronous communication and during simultaneous Ethernet activity. This problem especially applies to 8088-based PCs and is usually observed on a terminal emulator using a COMM port.

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## **System Configuration and Compatibility**

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This chapter discusses the following issues:

- EMS and XMS software compatibility
- Configuration-specific compatibility

### **EMS and XMS Software Compatibility**

This section describes EMS and XMS compatibility problems. It shows situations that apply when you load DECnet PCSA Client for DOS into EMS or XMS.

- The PC keyboard can lock when two PC programs are not compatible. Turn off the PC or press the reset option. Often, incompatible PC programs work together part of the time. Eventually they also lock up the PC.
- Typically, user foreground EMS applications are compatible with DECnet PCSA Client for DOS in EMS. One exception is an EMS application doing DMA I/O to the EMS page frame.
- Background EMS applications are device drivers or terminate-and-stay-resident (TSR) programs. When you load PCSA Client for DOS into EMS with other background EMS applications, a system failure can occur.
- For some hot-key TSR programs, changing the loading order can make a difference and allow them to work. Other EMS TSRs have a command line option which prevents the TSR from employing EMS.
- Some device drivers or TSRs can use either extended memory or EMS expanded memory. Always use extended memory for the other application when possible. This is true for RAM disks and disk cache programs. Network performance should increase.

- If you load DECnet PCSA Client for DOS into EMS, do not place any DOS V4.0 utilities in EMS. This means do not add the /X parameter to several DOS commands, including BUFFERS, FASTOPEN, and VDISK.

## **Configuration-Specific Compatibility Issues**

This section discusses the following situations and possible solutions:

- Performance limits on 8088- or 8086-based systems
- Software clock interrupt for IBM PC or PC/XT
- Real-time clock for IBM PC AT and compatibles
- Device conflicts
- Interrupt conflicts
- Incompatible system type codes

DECnet-DOS uses the PC system hardware and the DOS operating system in the most efficient manner possible. However, problems arise when:

- Third-party systems are not fully IBM-compatible
- There are inefficient software applications
- System configurations do not work properly

If you experience problems when running an application program, consider the following situations and possible solutions. Note that an application can exhibit more than one problem at a time.

### **Performance Limits on 8088- or 8086-Based Systems**

Using DECnet PCSA Client for DOS on 8088- or 8086-based systems configured for Ethernet communications can cause diskette drives to time out. This limitation applies to Ethernet configurations with 3COM EtherLink 3C501 or Interlan NI5010 boards installed.



**Problem**

The diskette drive returns errors because of DMA timing conflicts. Heavy background network traffic is a factor. Diskette formatting fails. Good sectors are flagged as bad. Attempts to Read to or Write fail. The system displays the following message:

Abort, Retry, Ignore?

**Solution**

Select the Retry option several times. You can also disconnect the Ethernet cable when using the diskette drive. You can disable multicast packet filtering to eliminate network interference.

**NOTE**

Do not install DECnet-DOS or run the DECnet PCSA Client for DOS installation procedure using diskettes with the preceding configuration until you disconnect the Ethernet cable.

**Software Clock Interrupt for IBM PC or PC/XT**

The Real-time Scheduler (SCH) component runs in the background as a software clock interrupt handler by way of interrupt 1C. The SCH receives clock interrupts to time network events for recovery from lost messages.

**Problem**

Using interrupt 1C can cause conflicts with programs that require clock interrupts like continuous time/date displays. The 1C interrupt can also cause problems with other programs using the interrupt. When this occurs, interrupt control is gone and lost connections result.

**Solution**

Do not run applications that require exclusive use of the 1C interrupt. Also, synchronous network requests made from within time-tick interrupts cause the network to hang. Because the DNP kernel does not run during time ticks, you can use MSG\_USRWAIT or MSG\_ASYNC requests.



## **Real-Time Clock for IBM PC AT and Compatibles**

On the IBM-PC/IBM AT, DECnet uses the real-time (CMOS) clock to time events. It directly programs the real-time clock device.

### **Problem**

DECnet runs improperly. Some industry-compatible PC ROM systems do not provide an identical IBM real-time clock.

### **Solution**

Use INT 1C for timing instead of the real-time clock.

### **Problem**

DECnet runs improperly. Some user developed programs disable the real-time IBM PC AT clock, or use the clock.

### **Solution**

The SCH component has a commandline option (/S) that enables SCH to function as a PC/XT-compatible. Using the /S option when loading SCH makes it ignore the CMOS clock and use the 1C interrupt for timing.

## **Device Conflicts**

Asynchronous DECnet requires an asynchronous device. Ethernet DECnet requires an Ethernet device. Each device uses one or more addresses in the I/O address range and one of the interrupt request lines.

### **Problem**

Communication stops when you run a software program.

### **Solution**

Do not use such programs while DECnet PCSA Client for DOS is active. Switch the IRQ number of the adapter.

## **Interrupt Conflicts**

A number of software programs execute a code sequence to prevent interrupts from communications adapters. This code sequence affects only IRQ3 and IRQ4.

### **Problem**

Two installed devices do not function. The devices conflict in IRQ number or I/O base address. For example, an Ethernet controller at IRQ 3 and COM2.

### **Solution**

Remove or reconfigure the conflicting hardware device. You can set both parameters using software or hardware with DECnet PCSA Client for DOS V3.0.

## **Incompatible System Type Codes**

When the DECnet-DOS Network Process (DNP) starts, it tries to determine the system type by checking location FFFE:0 in the ROM BIOS. COMPAQ Portable PLUS and Olivetti M24 systems do not set this location as the IBM standard identifier. The DNP returns the following message:

Unknown system type, defaulting to PC compatible.

The DNP treats the system as a PC/XT-compatible. You cannot modify this condition.

The SETHOST program also maintains a system type to default the correct keyboard mapping. You can change this mapping using the setup options with the SETHOST program.

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2. Methodology

3. Results and Discussion

4. Conclusion

5. References

6. Appendix

7. Acknowledgements

8. Author's Note

9. Correspondence

10. Contact Information

11. Declaration of Interest

12. Funding



## Client Software Network Utilities

---

This chapter provides information on:

- REDIRECTOR (REDIR)
- Limitations and known problems
- PC workstations and remote boot
- HIMEM.SYS

### REDIRECTOR (REDIR)

Be aware of the following Redirector issues:

- Digital Equipment Corporation includes Microsoft's basic LAN Manager for DOS in the DECnet PCSA Client for DOS product. Microsoft no longer supports the feature that prints a screen on a network printer facility. This means that the Print Screen option no longer works.
- The Redirector automatically loads into XMS (extended memory specification) if HIMEM.SYS is loaded and the XMS area is free. If you are running MS-Windows and do not want the Redirector to load in XMS, use the /HIMEM=NO modifier on the Redirector line.
- With some applications, printing over the network does not take place until the application terminates. The PRTSC TSR function allows a redirected printer to be closed, causing the data to be printed.

When you want data to be printed, be sure the PRTSC TSR is loaded and press Ctrl/Alt PRTSC.

- To enable a client to communicate with a version of the VMS server that is earlier than Version 3.0, include the /Z:512 modifier on the redirector command line as follows:

```
C> REDIR /Z:512
```

## Limitations and Known Problems

The following are known problems:

- When you use the SHOW SERVICE command in LATCP, the first LAT service displayed shows an incorrect Ethernet controller hardware address. The rest of the service table is correct.
- When you use the NET PRINT LPTx: /USER command for a print queue that has more than 120 pending entries:
  - Only the first 120 entries are displayed.
  - The display format may be altered.
- When you use block mode terminal emulators or send files to a terminal server from a fast PC, data overruns can occur.

If you experience problems with LAT under these circumstances, use the /s:n setting on the LAT command line to set n to 100. For example, enter:

```
C:\> LAT /s:100
```

If the problem persists, decrease n until the problem is corrected.

- When network components are loaded into EMS, there may be conflicts with other programs that use EMS.
- You cannot unload the disk services if your machine has been remote booted.
- The USE /SAVE command does not save a password specification for a connection to a printer service.
- An incorrect argument with the NETTIME command leaves DECnet links on the PC workstation idle. This may cause applications, such as DECwindows, to run out of links.

If this happens, use the following commands:

```
C:\> NCP SHOW KNOWN LINKS
C:\> NCP SET LINK x STATE OFF
```

- A virtual disk connection can fail when the system uses a 3COM 3C503 Ethernet adapter on a 386 machine while writing to the virtual disk drive. If this happens, add the W:6 parameter on the line that loads the virtual disk. For example:

```
C:\> LAD /W:6
```



You can also add the W:6 parameter after the virtual disk is initially loaded.

- **NETTIME command**

If NETTIME cannot connect to a specific server because of an incorrect argument, it leaves idle DECnet links on the PC. While this condition does not cause a system failure or lead to incorrect operations, it can cause applications like DECwindows to run out of links.

When NETTIME fails to connect to a specific server (indicated by the node name on the NETTIME command line), use the following procedure to find and free the idle link:

1. Enter this command to find the idle link:

```
> NCP SHOW KNOWN LINKS
```

2. Enter this command to free the link:

```
> NCP SET LINK n STATE OFF
```

where:

n            Is the number of the link to free.

- **NET CREATE command**

When you use the NET CREATE command, the server node name and address must be defined in the NCP database of the workstation where you are executing the command. If the node name is not defined, the specified virtual disk is created in the SYS\$COMMON:[PCSA] using the PCSA\$RMI account.

## PC Workstations and Remote Boot

The following list provides information about using remote boot:

- To use a RAM DEPCA for remote boot, replace DEPCA.TSK with DEPCARAM.TSK.
- When a PC workstation boots from the network, the remote boot image uses the upper 17 Kbytes of memory for components that would otherwise reside in conventional memory. The total memory size as reported by utilities such as CHKDSK will be off by 17 Kbytes.



- If the server is too busy when you remote boot a workstation, the following error is displayed:

Unable to load boot image over the network.  
Floppy Remote Boot failed.  
Press any key to attempt reboot.....

Do not press any key to remote boot; instead, press Ctrl/Alt/Del to reboot.

- If you try to access your remote boot diskette in drive A after booting the workstation, one of the following error messages can be displayed:
  - Bad command or file name
  - Invalid disk change reading/writing drive A:
  - File not found

To correct the situation, open and close the diskette drive door.

## HIMEM.SYS

Be aware of the following HIMEM.SYS issues:

- HIMEM.SYS may conflict with programs that do not allocate extended memory according to the XMS specification. This includes the PC-DOS Version 3.3 VDISK.SYS program.

HIMEM.SYS conflicts with many 386 EMS (expanded memory specification) Version 4.0 drivers, including Zenith ZEMM.SYS, COMPAQ CEMM.EXE, IBM XMAEM.SYS, and Digital DEMM.SYS. The alternative is to use a 386 memory manager. Some 386 memory managers may incorporate XMS support into their drivers. If this is the case, HIMEM.SYS should not be loaded.

- To use HIMEM.SYS with QEMM you must make sure to leave some extended memory available for HIMEM.SYS to use by specifying one of the following:
  - ME= smaller than the total extended memory available
  - EXT= a value greater than 64
- HIMEM.SYS is incompatible with IBM PC-DOS VDISK prior to Version 4.0, but does work with VDISK Version 4.0. HIMEM may not work with applications which allocate extended memory by a method other than the one administered by HIMEM and defined by Microsoft.

- **HIMEM.SYS** may not work on some clones and some industry-compatible PC workstations. Its operation is a function of the method used to control the A20 address line. It is known to work on IBM PC/AT, PS/2, Compaq, and DECstation.





# 11

## PCMAIL

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Be aware of the following PCMAIL issues:

- PCMAIL cannot send mail to a distribution list within another distribution list. For example, the file MY.DIS contains BRONTE::SARRO, WOOLFE::SMITH, and @USERS.LIS. In this example, PCMAIL is unable to send mail to @USERS.LIS. Remove @USERS.DIS from the MY.DIS file.
- If you receive a message through a distribution list and you use PCMAIL to reply to all, an error is displayed stating that the distribution list file cannot be found. Remove the distribution list before exiting from the editor.
- PCMAIL cannot handle critical errors when printing. Make sure LPTx: is connected before printing. Otherwise, you are returned to the DOS prompt.
- PCMAIL tells you there are no new messages even if there are new messages when:
  - You are in the Newmail folder and you delete all your messages from the Newmail folder.
  - You check for new mail.

Change folders and then check for new mail, or exit from PCMAIL and then restart it.

- Having a MAIL.MAI;2 file on the server causes unpredictable results when using PCMAIL. Rename MAIL.MAI;2 to MAIL.MAI;1 on the server.



# 12

## Transparent File Access (TFA) Utility

---

The following list includes the existing problems and limitations that you should be aware of when using TFA:

- An interaction between all versions of TFA and the Microsoft C runtime library causes ASCII data to transmit as BINARY.
- The DOS V4.0 COPY command cannot access remote files with TFA.

Use NFT COPY commands for remote file access from a command level.

- TFA supports the MSDOS calls listed in the *DECnet-DOS Programmer's Reference Manual*. It also supports the new MSDOS V4.0 extended open function (6C) as documented in the *IBM DOS V4.01 Technical Reference Manual*.
- The same file cannot be open for both input and output.

Refer to the *DECnet-DOS Programmer's Reference Manual* for complete information on TFA.



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# THE HISTORY OF THE UNITED STATES

OF THE UNITED STATES OF AMERICA

FROM THE FIRST SETTLEMENTS TO THE PRESENT TIME

BY JAMES M. SMITH

NEW YORK: PUBLISHED BY J. B. LIPPINCOTT & CO., 15 N. 2ND ST.

# 13

## Providing OS/2 Server Access to DOS Clients

---

This chapter describes how to enable DOS clients to access and use file and print services on an OS/2 server. To access an OS/2 server you must:

1. Obtain the OS/2 server node name, service name and password (if required for the service) from your OS/2 server administrator.
2. Be sure the OS/2 server is operating in SHARE level security.
3. Depending on your DOS client configuration:
  - For DOS clients already configured in a PCSA network with a VMS server, enter the USE utility commands to connect to the OS/2 server.
  - For DOS clients without existing PCSA network access, install the DECnet PCSA Client for DOS software with diskettes, then enter USE utility commands.

It is assumed that you have already purchased the DECnet PCSA Client for DOS software and associated documentation.

### OS/2 Server Security

The OS/2 server must be operating in SHARE level security. By default, the Netsetup program configures the server to operate in SHARE level security.

If you are unsure that the server is in SHARE level security, check the the server section of the LANMAN.INI file. Be sure that the "security=" entry is set to "security= share". For more information about the LANMAN.INI file, refer to *LAN Manager Enhancements*.

## DOS Clients Already Configured in a PCSA Network

DOS clients already configured in a PCSA network with a VMS server can access an OS/2 server with the USE utility. The following considerations apply when accessing an OS/2 server:

- When you connect to an OS/2 server, a percent sign (%) must follow the service name. Use the following USE command format:

```
USE M: \\OS2NODE\SERVICE% [PASSWORD]
```

Where:

OS2NODE	Is the OS/2 server node name
SERVICE%	Is the service offered on the OS/2 server
PASSWORD	Is the optional password for the service

- The user name qualifier is not supported for OS/2 services.

Refer to *Network Commands Reference Manual* for more information about USE utility commands.

## DOS Clients Without Existing PCSA Network Access

To enable DOS clients without existing PCSA Network access to use an OS/2 server, you must: <MARGIN\_NOTE>(DECnet PCSA Client for DOS Media is available on three types of media)

1. Obtain one of the following DECnet PCSA Client for DOS with Diskettes Media kits:
  - RX31 diskettes with thirteen DNET PCSA CLNT DOS diskettes.
  - RX33 diskettes with six DNET PCSA CLNT DOS diskettes.
  - RX24 diskettes with seven DNET PCSA CLNT DOS diskettes.
2. Obtain a copy of *Installing DECnet PCSA Client for DOS (With Diskettes)* manual.
3. Follow the instructions in the *Installing DECnet PCSA Client for DOS (With Diskettes)* manual to install, configure, and setup the DOS workstation.



## Installation Considerations for PCSA for OS/2

During the DECnet PCSA Client for DOS installation, enter the responses for the menus or prompts shown in Table 13-1 to connect to PCSA for OS/2.

**Table 13-1 Installation Considerations for PCSA for OS/2**

Menu or Prompt	Selection
Communication Types	Select item two, Ethernet.
Copy Kit Files Menu	Select item four, Copy All DECnet DOS and PCSA network files. This selection enables you to access OS/2 servers.
Do you want to run LAN Manager in Extended Memory?	You must enter <b>Y</b> if you have Extended Memory installed on your system.

### Accessing OS/2 Servers

After you complete the installation and reboot your workstation, you can access OS/2 servers on the network by entering the USE utility commands. These commands are described in the DOS Clients Already Configured in a PCSA Network section in this manual, and they are also described in the *Network Commands Reference Manual*.

THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF CHEMISTRY  
530 SOUTH EAST ASIAN AVENUE  
CHICAGO, ILLINOIS 60607-7070  
TEL: (773) 936-7000 FAX: (773) 936-7001  
WWW: WWW.CHEM.UCHICAGO.EDU

THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF CHEMISTRY  
530 SOUTH EAST ASIAN AVENUE  
CHICAGO, ILLINOIS 60607-7070  
TEL: (773) 936-7000 FAX: (773) 936-7001  
WWW: WWW.CHEM.UCHICAGO.EDU

THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF CHEMISTRY  
530 SOUTH EAST ASIAN AVENUE  
CHICAGO, ILLINOIS 60607-7070  
TEL: (773) 936-7000 FAX: (773) 936-7001  
WWW: WWW.CHEM.UCHICAGO.EDU





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